IN THE SPECIFICATION:

Please amend the paragraphs starting at page 1, line 12, and ending at page 2, line 20, as follows.

--In a refracting optical system, use has heretofore been made of a method of decreasing chromatic aberration by combining glass materials differing in dispersion. In contrast, a method of decreasing chromatic aberration by providing a diffractive optical element having the diffracting action on a lens surface or in a portion of an optical system is disclosed in such literature as SPIE, Vol. 1354, International Lens Design Conference (1990), Japanese Patent Application Laid-Open No. 4-213421 (corresponding U.S. Patent 5,0447,06), Japanese Patent Application Laid-Open No. 6-324262 (corresponding U.S. Patent 5,790,321), etc. These correct chromatic aberration by the utilization of the phenomenon that chromatic aberration appears in opposite directions on a refractive part and a diffractive part disposed in an optical system. Also, such a diffractive optical element is comprised of phase-type diffractive gratings having synchronism, and can also be given an effect like that of an aspherical lens by varying the period of the periodic structure thereof, and is greatly effective to reduce aberrations.

The diffractive optical element having the above-described phase-type diffractive gratings, unlike a conventional lens optically acting by the refractive index of the medium thereof and the profile of the surface thereof, performs action similar to that of a lens which causes incident light to converge or diverge by a diffractive phenomenon occurring due to the synchronism of the diffractive gratings. The shape of the diffractive gratings in such a diffractive optical element has is a concentric circular shape centering around a point, and

the diffractive grating nearest to the central point is called a first zone, and the subsequent diffractive gratings are called a second zone, a third zone, and so on.--

Please amend the paragraph starting at page 5, line 1, and ending at line 12, as follows.

--However, when the technique disclosed in the above-mentioned publication is adopted for a diffractive optical element in which two diffractive gratings are disposed with an air layer therebetween, the positioning convex portion becomes longer by an amount corresponding to the air layer and therefore, there is the following problem. If ~~It is that if~~ the convex portion is made thin so as not to affect optical performance, uncertainty of strength will occur, and ~~that~~ if the convex portion is made thick so as not to pose a problem in strength, influence upon optical performance will be feared.--

Please amend the paragraphs starting at page 6, line 1, and ending at page 7, line 14, as follows.

--In order to achieve the above object, the diffractive optical element of the present invention comprises a first diffractive optical part having phase-type diffractive gratings disposed in proximity to each other with an air layer therebetween, and a second diffractive optical part having phase-type diffractive gratings formed of a material differing from that of the first diffractive optical part, and is characterized by marks for aligning the first and second diffractive optical parts with each other formed in the optical effective areas of the first diffractive optical part and the second diffractive optical part.

Also, a method of manufacturing the diffractive optical element of the present invention is characterized by the step of molding a first diffractive optical part having a phase-type diffractive grating, the step of molding a second diffractive optical part having a phase-type diffractive grating, the step of aligning the first diffractive optical part and the second diffractive optical part with each other while observing marks present on the optical effective areas of the first diffractive optical part and the second diffractive optical part, and the step of fixing the first diffractive optical part and the second diffractive optical part with an air layer therebetween.

Also, a metal mold for manufacturing the diffractive optical element of the present invention is characterized by a first area for molding a phase-type diffractive grating, and a second area provided in the first area for molding a mark for aligning the diffractive grating molded thereby with another member.

BRIEF DESCRIPTION OF THE DRAWINGS

Fig. 1 is a front view of a laminated-type diffractive optical element according to an embodiment of the present invention.

Fig. 2 is an enlarged cross-sectional view of the essential portions of the central portion of the laminated-type diffractive optical element according to the embodiment.--

Please amend the paragraph starting at page 7, line 18, ending at line 20, as follows.

--Fig. 4 shows the manner in which a diffractive grating of a concave lens-type is molded by the metal mold.--

Please amend the paragraphs starting at page 8, line 12, ending at page 9, line 16, as follows.

--Fig. 1 is a front view of a diffractive optical element 1 according to the present embodiment. Fig. 2 shows a cross-sectional shape of the diffractive optical element of Fig. 1 taken along the line 2-2 of Fig. 1, and in order to help understanding, the diffractive optical element is depicted more exaggeratedly in the direction of depth of a diffractive grating than actual circumstances. In Fig. 2, the reference numeral 2 designates concentric circular phase-type diffractive gratings constituting a diffractive optical part of a first layer, and the reference numeral 3 denotes concentric circular phase-type diffractive gratings constituting a diffractive optical part of a second layer~~, and registration.~~ Registration marks 5 are provided near the optical axis which is the optical effective areas of the diffractive optical parts 2 and 3 of these first and second layers. The registration marks 5 are used to effect alignment highly accurately when the diffractive optical element 1 of laminated structure is made.

The diffractive optical element 1 according to the present embodiment is of a structure having the diffractive optical part 2 of the first layer, the diffractive optical part 3 of the second layer and an air layer 4 spacing the diffractive optical parts of the first layer

and the second layer apart by a predetermined distance from each other. Also, the diffractive optical part 2 of the first layer and the diffractive optical part 3 of the second layer are formed of materials differing in dispersion, and act as a diffractive optical element through all the layers including the air layer 4.--

Please amend the paragraph starting at page 14, line 5, ending at line 21, as follows.

--The diffractive optical parts made in this manner are fixed with a predetermined air layer 4 therebetween while the registration marks 5 are confirmed by means of a magnifying apparatus such as a microscope. The fixing of the two diffractive optical parts can be accomplished by joint portions, not shown, provided on the outer edges of the optical effective areas of the respective diffractive optical parts being cemented together by an adhesive agent or the like. Fig. 6 shows the state when the registration marks 5 are observed by means of the magnifying apparatus such as a microscope when the two diffractive optical parts 2 and 3 are superposed one upon the other. The locations indicated by thick lines are the edge portions of the registration marks 5, and by aligning these locations with each other, a laminated-type diffractive optical element can be made with good accuracy.--

Please amend the paragraph starting at page 15, line 3, ending at line 5, as follows.

--An embodiment of an optical system using the laminated-type diffractive optical element 1 will now be described with reference to Fig. 7.--